Interspecies Newsletter

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Dreaming about Ant Communication

Weaver ants have developed a language based upon upper body movements. Two examples spring to mind. Firstly, they utilize a distinct side-to-side, face-to-face, antennae waggling dance when communicating the presence of nearby food to other workers. And secondly, when a weaver ant chances upon an intruder, even at a considerable distance from the nest, she stops foraging for food and releases a pheromone (an alarm scent) into the air which attracts reinforcements. If the adversaries are numerous, some of the summoned weavers soon break off from the fight and immediately return to the nest, all the while laying a pheromone trail to and from the battleground. Back at the nest, these messengers now recruit other workers to the fight by jerking their faces back and forth, toward and away from the nestmate.

This recruitment gesture includes yet another feature strongly suggesting that the animals are firstly thinking, and secondly acting upon those thoughts. Instead of immediately setting off down the odor trail, some of the recruited ants now turn to other workers and repeat the same head gestures even though they have not been *directly* stimulated by the invaders. In other words, the second line of communicators, and so on down the chain, communicates a message learned directly from a communicated signal, and not from the pheromone itself. In this manner, a maximum number of recruits is enlisted very rapidly.

The prevailing scientific view about the matter describes these actions in some detail, but then enforces a veritable code of silence about interpreting them. Traditional entomologists limit their speculations about the depth of weaver ant communication to the guarded comments that the antennae rubbing may transmit the actual odor of the food; while the recruitment gesture is little more than an instinctual motion that resembles the movements employed in fighting only coincidentally.

But Donald Griffin, from whose book, *Animal Thinking*, this example was lifted, wonders if the issue of weaver ant communication can be sloughed off so downright ungenerously. He remarks that the intruder dance may just as easily be interpreted as an *intentional pantomime*. Furthermore, the two communications are just that, communications – and prime expressions of animal consciousness. The two distinct gestures convey two distinct messages about what is to be done at the end of the odor trail.

Griffin believes that the scientific community stands guilty of not ascribing consciousness to weaver ants despite the fact that their own evidence strongly suggests it. He adds that his colleagues err on the side of anthropocentric absurdity when they declare that it is nothing but coincidental that the fighting

dance actually succeeds in preparing the ants for fighting rather than food gathering. It seems akin to believing that it is only coincidental that building nuclear weapons prepares human beings for nuclear war.

Griffin's book takes strong issue with the predominant scientific bias against animal consciousness:

"Recognizing that most communication between ants involves chemical signals, which would be almost impossible to decode if they are at all differentiated, we should maintain open minds about the possibility that these simple distinctions among recruitment messages might be only the more easily detected components of a versatile system of chemical communication. I am extrapolating here far beyond anything that these scientists or their colleagues have suggested. When asked how they know that these ants cannot entertain any conscious thoughts, the scientists usually fall back on the prior conviction that insects are genetically programmed automata and that their brains are too small to permit conscious thinking. Evidence of differentiated communication has not yet altered this deep-seated conviction."

Back in the 1920's, South African naturalist, Eugene Marais, spent ten years watching termites and ants, and concluded that colonies may be best understood as a composite being possessed of both a group purpose and a group mind. We actually misconstrue the whole organism when we perceive individual workers as if they might be independent little insects living out their lives in a tight social context.

Consider them instead as building blocks, the ultimate communistic slaves, internally programmed to do the bidding of their queen and nothing beside. For her own part, the queen's control over her workers seems based upon some communicative mechanism far beyond our ability to explain, although some might liken it to telepathy. For example, when Marais enclosed a termite queen within a tiny steel plated prison, the colony continued to flourish. But if he killed the queen, even inside that same prison, the whole community soon ceased to work. At certain times of the year the termites would immediately set themselves to the genetic task of grooming another queen. However, at other times of the year the colony seemed quite incapable to "build" themselves another queen. Inevitably, the entire hive soon died.

If another termitary grew close by, the workers soon drifted into the new colony where they apparently "swore allegiance" to the new queen, because, in fact, there was no sign of rejection. However, if these same disinherited termites were immediately brought to a nest a hundred yards away, a fight quickly led to the deaths of all the intruders. As Marais explains it:

"The mysterious power which streams from the queen functions only within a limited distance. Every termite is under its power. If the two termitaries are situated close to each other, the power of each queen operates in both nests. It is through this psychological power of the queen that the termites of one nest are capable of recognizing their fellow citizens and discovering strange intruders."

When Marais waited a few days before attempting to transfer the befuddled workers to a more distant nest, he found that they were no longer attacked. Whatever power the old queen might have possessed over her minions had evidently "evaporated". The now *empty* workers, like bits of computer memory, were available to be filled up with the program of a new hostess. But by what power does the queen hold the community together? Marais comments:

"We will assume that it is something analogous to scent. Personally I do not think it is scent but something much more subtle. But if we think of it as scent it will simplify matters for we are actually dealing with something far and away beyond human sense."

In *Gödel, Escher, and Bach*, Douglas Hofstadter abstracts the metaphysical findings of Marais even further, and so describes many eery similarities between a functioning ant colony and the self-aware human brain. For example, Even though an ant colony is comprised of ants, its power and function can no more be apprehended as a *collection* of ants than the power of the brain can be apprehended as a *collection* of brain cells. Just as our minds can not sense the firing of individual brain cells when we think our thoughts, so the colony can not sense the movements of individual ants off fulfilling their programmed function. Yet despite this mutual inability to sense the lower level of meaning, brains and colonies both remain mysteriously unified and coordinated through some, as yet unexplained teleological mechanism. We call the sum total of all these functions, *consciousness*, as it refers to human brains. Yet harking back to Griffin's complaint, there is not yet any commensurate term to describe the same process as it refers to ant colonies. Could we do any better than also calling it consciousness, although a kind of non-human version of the concept which is very alien to ourselves?

Where I live in the Pacific Northwest, thrashing ants build large mounds out of sticks and pine needles, sometimes two feet or more on a side. Each mound might contain as many as several hundred thousands ants. The ants try to keep to themselves, although they sometimes build their mound too close to my own house. When that occurs ant bodies start popping up in our sink, in dinner, and in bed. Eventually I feel bound to do something about this insect invasion before it gets totally out of hand. However, I refuse to use the standard remedy of diazinon. I don't want to destroy them, merely move them further away from my own house.

So instead, I spray gasoline on the surface of the mound and simply set it afire. Of course I am aware that this presumed communication technique probably sounds utterly violent. But

wait! Try instead to perceive of the colony, *and not the individual ants*, as the conscious entity being addressed here. After all, the queen, is safely ensconced deep inside the heart of the mound, and suffers no harm. Most importantly, she indubitably gets the message, and soon directs her workers to move the colony from its present location. For some unexplained reason, the colony almost always moves *further* away from my own house. I can't explain why, although it certainly makes me feel glad.

Personally, I find myself prey to the most uncomfortable of fantasies whenever I step inside the ten foot radius of an ant colony's self-aware, personal space. Is this a case of the heebie-jeebies, or has my relationship to the colony turned me super-sensitive to the hypnotic spell being cast by a telepathic queen? I sense that the colony has tacked up a psychic signal inside the billboard of my own mind: beware you fool, inner sanctum, you trespass at your own risk. One part of my own mind seems to fear that it might actually get taken over by ant commands causing me to start jerking my head from side to side in recognition of the enemy. That enemy is, of course, myself. Furthermore, this risk is double-edged because the enemy I face is also a real-time confrontation with my own worst *fantasies* about swarming ants. What if a sudden stiff gust of wind should pick me up bodily and drop me onto the mound?

Even as I dream up this nightmare of ants as a violation of my own personal space, so the living, breathing ants insist upon going about their business of swarming outside of my own dreamt up fear of them. What irony! When it comes to human/ant relations, violation and interspecies communication are starting to sound like variations on the same theme.

Actually, my own relationship to the local thrashing ants seems more than a bit like something out of Alice in Wonderland. For example, a bewildered Alice wishes to wake up a sleeping Red King because he happens to be dreaming about her:

*" 'It's no use **your** talking about waking him,' said Tweedledum, 'when you're only one of the things in his dream. You know very well you're not real.' 'I **am** real!' said Alice, and began to cry. "*

But what does that make of Alice? Or permit me, instead, to ask a really juicy question that addresses the central thesis of this discussion. Because the ants are so obviously different than either the scientific community's depiction of them as mindless automata, or my own (and possibly *your* own) anxiety about them, what does that make of any and all of our perceptions about nature? For example, what does that make of real live ants? Hindu mythology, by way of Joseph Campbell, provides one splendid "answer" to this particular riddle.

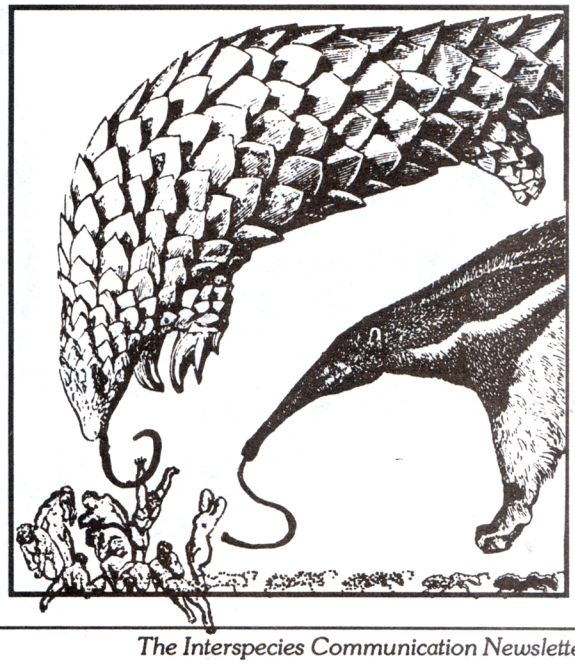
As the story goes, Indra, god-king of the *waking world*, is furiously exploiting all the resources of the world in a vain attempt to build a huge palace as a monument to his own glory. The other creatures can not long endure this folly. Finally, they levy a complaint to the sleeping god Vishnu. It is Vishnu, who holds the ultimate responsibility for every single event of this waking world, simply because he is actually dreaming the whole thing up. Now, in an effort to mollify Indra's growing number of plaintiffs, Vishnu dreams up an army of ants to parade through the half-finished palace of the god-king. Of course, when Indra sees this nightmarish invasion of ants, he angrily hastens Vishnu's messenger, demanding an immediate explanation.

The messenger explains, 'As you know, the waking world we perceive is nothing but Vishnu's dream. However, even Vishnu has to wake up once in a while, which he does about every three hundred thousand years. He flickers his eyes for a few minutes and then falls back into a deep sleep again. At that moment, all the events and inhabitants of the waking world are simply dreamed up all over again.'

Now the messenger peers Indra directly in the eyes. 'And of course, that is why Vishnu thought that living ants might be a far better mounument to your splendour than even the most magnificent of palaces. You see, each individual ant is the reincarnation of an Indra from a unique dream of Vishnu.'

Indra stares at the ants busily going about their work, and then turns very pensive. 'There must be millions and millions of them,' he cries in despair. 'Yes,' replies the messenger. 'You see, the deeds you accomplish in this lifetime are the things that affect your future incarnation. Ants, for example, are the most skilled builders of palaces. In your own case, the better you get at building a palace as a monument to yourself, the better chance you have for getting incarnated as an ant in your next life.'

The messenger shakes his head and watches the ants cover every surface within the palace. 'As you can plainly see, the ant colony has grown very large. Literally millions upon millions of former Indras listened to this very same injunction, and then forged ahead to build magnificent handiworks. Naturally, they achieved their reward. And of course, unless you decide to stop building this palace, you too will be rewarded by turning into an ant. Somebody else



is going to have to play the part of Indra, god-king of the waking world.'

By the time that the messenger takes his leave, with ants following behind him, Indra has stopped all work on the palace. So the world is saved.

On that note, permit me to quietly clunk the gasoline can next to the rock while I jog back into my own house to find a pack of matches, jog over to the hose nozzle to turn on the water as a safety precaution, jog over to the wood pile to find a good stout pole, and finally jog back down to the ant mound with hose and matches and pole in hand. I jab the pole deep into the mound, stir up the insides until the ant eggs bubble up to the surface like the viscera of a rotten carcass full of maggots, pour a half pint of gasoline onto the perfect dome of their domicile, step back, and throw in a lit match. 10,000 ants are incinerated within a fraction of a second.

Later on, when the slow blue fire settles down, I sink the stick in a second time, dredging up thousands upon thousands of 1/4 inch long eggs that, this time, remind me of nothing so much as the leavings of an office paper-punch. Meanwhile, all those ants who had been out gathering building material and food start to arrive back on the disheveled scene. Without so much as a pause to surmise the situation, they immediately set upon the task of gathering up the eggs to carry them back inside the steaming mess that was once a nest. Reading my Marais correctly, that observation of functioning workers also signifies that the queen is still quite alive and presiding over the whole operation. Is she guiding my hand as well? An hour later I return to the nest again, drop in another half pint, stand back, light a match, and watch the remains light up like a baked Alaska. Another 10,000 brain cells vanish in an instant. I lobotomized the colony one last time the next morning.

A week later, the newly constructed nest was fast approaching the size of the original, having moved a substantial twenty feet further down the hill. I watched as the mound pulsated with the bodies of black and red ants piled up on top of one another. In fact, I could barely see the mound at all through the opaque mass of tightly intertwining ant bodies. A hundred thousand organically bound beings, tending to the needs of their young, setting up ingenious transportation and communication links to foodsites, building a splendid palace as a monument to their own collective self.

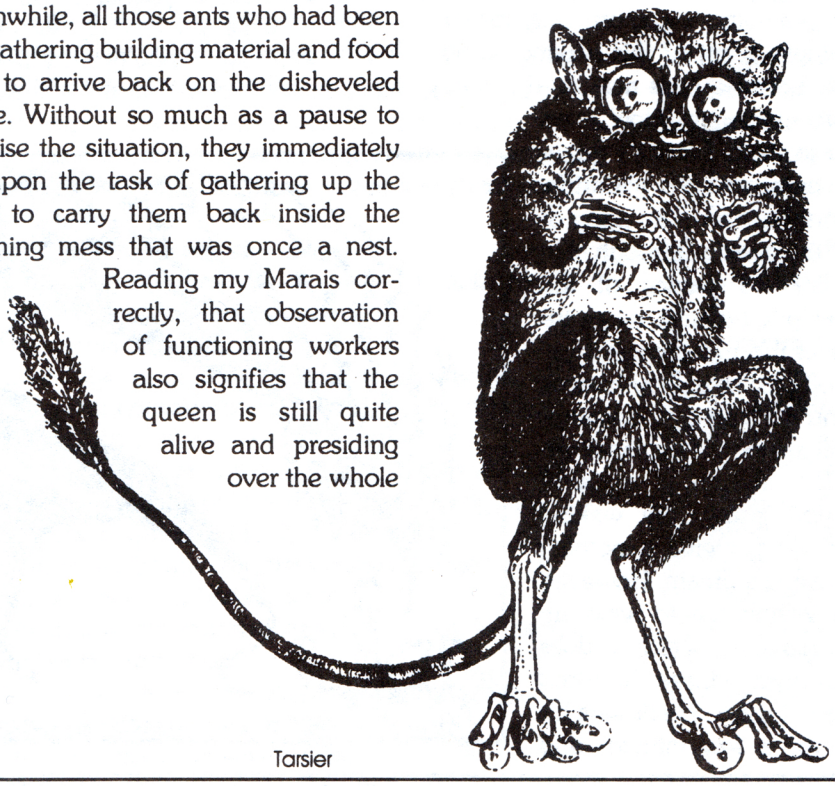
Two years have gone by since that violent act of incineration. The colony has remained in the same place well away from the house. The workers continue to seethe across the landscape with a sound that doesn't seem to emanate from anywhere in particular. Likewise, the colony itself continues to palpitate with an aura of consciousness like some strange alien pod from another galaxy.

And every March the colony sends out emissaries searching for new sites upon which to build suburbs, just to take some of the pressure off their overpopulated city. It also means, of course, that every March they invade my house anew. For two weeks my family endures a much more restrained invasion of fifty or so ant scouts parading across the living room floor and once in a while falling off the dining room ceiling into somebody's soup. After two weeks, these domestic explorations always seem to subside just as mysteriously as they began.

Most importantly, the queen ant's willingness to cooperate, whether consciously or unconsciously, has also helped me to overcome whatever fear I may have ever felt for them. The two of us communicated in the only way we both knew how, and so arranged a compromise. In other words, the waking world of ants has finally overwhelmed my own private dream world. I have learned the same dream lesson of spiritual ecology as channeled from Vishnu to Indra and finally, to myself.

Yet, every so often, out in the environs of this human/ant joint venture in property ownership, I discover one of their suburbs under construction too close to my own house. I always push a stick into the middle of the budding colony. And the ants always comply by moving further down the hill. At least that's *my* version of it. For all I know, the queen is dreaming the whole thing up quite a bit differently.

- Jim Nollman



Tarsier

ants by Constance Perenyi

Beluga Project

The beluga whales are among the most gregarious of cetacean species. Because their vocalizations are so exceedingly melodic in nature, the beluga has long been known as *the canary of the sea* by Arctic explorers. Yet because of their icy habitat, they are among the least visited of all cetacean species. As far as we know, IC's ongoing work with the belugas is the first interactive study ever conducted with this species in the wild.

The IC Beluga Project is now slated to occur during the first two weeks in July up along the MacKenzie River Delta of Arctic Canada. This project, now in its third year, focuses upon our own crew of musicians interacting with the beluga whales who venture into the Delta in July to nurture their newborns.

Despite the fact that just about the only humans the belugas ever encounter are hunters trying to kill them, these small whales are also well known for venturing right up to a human wading into the shallow estuary to meet them directly. In other words, the belugas avoid outboard motor noise yet still favor human contact. In keeping with this preference of the whales, much of our own research this summer will be based upon dry-suited humans in the water creating quiet acoustic music. Our objective is simply to participate with the whales, to let them decide the parameters of the unfolding relationship. We hope to document a new leaf in the several thousand year old relationship between human beings and beluga whales.

Our international crew of four (possibly five) includes: 1) IC director, Jim Nollman 2) Canadian Arctic liaison, Jonathan Churcher 3) Photographer Daniel Dancer, whose work has been published in *Life* and *Outside*, among others. 4) German Conceptual Artist Michael Remann. We are still trying to negotiate the participation of Soviet cinematographer, Andres Slapins.

This project has recently been invited to locate along the Anadyr River Delta in Siberia during summer 1990, as the guests of the Soviet Government.

Human/bird Communication

According to rock paintings from widely scattered parts of the African subcontinent, human beings have been collecting honey for at least 20,000 years. For at least part of this time, Africans have been guided in their search for bee hives by following a bird commonly known as the *greater honeyguide*, but perhaps better described by its latin name: *indicator indicator*.

The Boran people of Kenya, for example, deduce both the direction and the distance to the hive as well as the bird's arrival at the hive, by watching the bird's varying flight patterns, perching heights, and especially the changes in the bird's song.

In order to draw the attention of the birds initially, the Boran utilize a penetrating whistle, called *Fuulido*, that can be heard from a distance of a kilometer or more. The *Fuulido* is produced by blowing air into clasped fists, modified snail shells, or hollowed out palm nuts. Significantly, when the Boran utilize the *Fuulido* whistle, it just about doubles the encounter rate between human and bird.

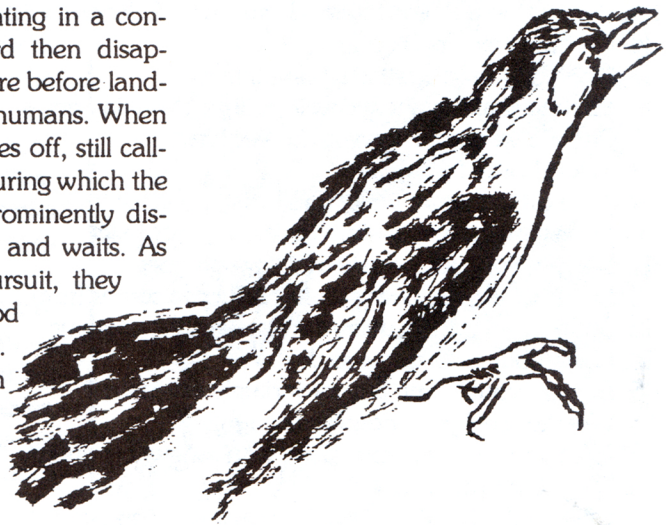
Next, the honeyguide draws the attention of the humans by flying close to them, moving restlessly between perches, and emitting a double-noted call, *tirr-tirr*, before alighting in a conspicuous place. The bird then disappears for a minute or more before landing once again near the humans. When approached, the bird takes off, still calling. After a short flight, during which the white tail feathers are prominently displayed, it perches again and waits. As the Borans follow in pursuit, they whistle and bang on wood to keep the bird's interest.

Experienced human honey gatherers know that the bird's varying flight and voice patterns inform them about the direction and the distance to the hive. Direction is easily determined because the bird rarely veers from a straight shot to the hive. Furthermore, a bird flying lower than the treetops is usually indicating a hive located close to the ground.

Distance is determined by three features. Firstly, the distance between the bird's perches decreases as they get closer to the hive. Secondly, the height of the bird's perch gets lower to the ground as they get closer. And thirdly, the bird's disappearance between perches decreases in duration. The Boran maintain that when the bird disappears, it is flying off to the hive, just to be sure of its own bearings.

Significantly, the Boran also know the precise moment when the bird has reached the hive. The honeyguide now emits what is known as *the indication call*, which is softer in tone, with longer intervals between successive notes. After a few of these new calls, the bird stops singing altogether. When approached by the human gatherers, the bird circles the hive a few times, and then flies to a nearby perch. At that point, it may change its song back to the *tirr-tirr* call. That tells the humans that the bird wants to lead them to still another tree. If they follow, the process starts all over again. If they do not, then the honeyguide waits for the humans to gather the honey. Once the humans have finally left the scene, the bird feeds on the pieces of honeycomb left behind.

– suggested by Julia Tracy



Greater Honeyguide
Constance Perenyi

Living Green

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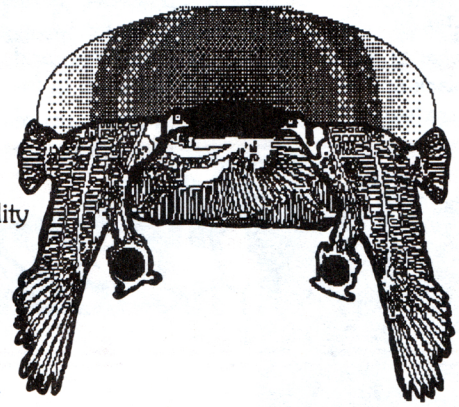
The Green Movement is more than a political ideology because Green values also involve how we live every day. This list is for those who have the "Green Spirit" and would like to incorporate it further into daily living. How does it relate to communicating with animals? Think of it this way: only by activating the items on this list, can our great-great-great grandchildren have an opportunity to interact directly with the great whales, the elephants, the ravens, the wolves. This list was created by IC board member Christoph Enderlein and his wife Mary-Clayton. Feel free to copy, but do not change it without permission.

1. Recycle paper,glass, and metals
2. Recycle motor oil, dispose of hazardous waste responsibly
3. Use cloth diapers
4. Reuse egg cartons and paper bags
5. Avoid using styrofoam
6. Avoid disposable plates, cups, utensils
7. Use rags instead of paper towels
8. Use paper bags, not paper towels to drain grease
9. Give away rather than dispose of unneeded items
10. Use the back of discardable paper for scratch paper
11. Be responsible and creative with leftover food
12. Use the water from cooking vegetables to make soup
13. Mend and repair rather than discard and replace
14. Invest in well-made functional clothing
15. Buy bulk and unpackaged rather than packaged goods
16. Purchase goods in reusable and recyclable containers
17. Buy organic, pesticide-free foods
18. Avoid highly processed foods
19. Eat foods from low on the food chain
20. Compost your food scraps
21. Grow your own food (even small kitchen gardens)
22. Volunteer to start or help with a community garden
23. Support your local food co-ops
24. Discover where the foods and goods you buy come from
25. Buy locally grown produce and other foods
26. Use glass and steel cookware rather than aluminum
27. Volunteer to maintain local parks and wilderness
28. Buy living Christmas trees
29. Plant trees in your community
30. Learn about the plants and animals in your region
31. Discover your watershed and work to protect it
32. Oppose the use of roadside defoliants in your area
33. Use non-toxic, biodegradable soaps and cleansers
34. Use non-toxic pest control
35. Don't buy products tested on animals
36. Keep hazardous chemicals in spillproof containers
37. Put in a water conserving shower head
38. Take shorter showers
39. Turn off the water while you brush your teeth
40. Put a water conservation device on your toilet
41. Learn where your waste and sewage goes
42. Learn where the energy for your home comes from
43. Support your local utility's conservation programs
44. Hang your clothes out to dry
45. Be sure your home is appropriately insulated
46. Weather-seal your home thoroughly
47. Heat your home responsibly, with renewable energy
48. Don't burn green wood
49. Choose the longterm investment of solar energy
50. Turn off lights when not in use
51. Turn down your hot water heater
52. Lower your thermostat and wear warmer clothes
53. Buy energy efficient electrical appliances
54. Keep your car engine well tuned
55. Drive a fuel-efficient car that uses unleaded gas
56. Walk, bicycle, carpool, and use public transportation
57. Shop by phone first, then pick up your purchases
58. Use rechargable batteries
59. Research socially-responsible investments
60. Support local credit unions
61. Support local shops and restaurants, not chains
62. "Adopt a grandparent" from the local senior center
63. Volunteer to cook for senior citizens
64. Provide for children in need
65. Hold a community potluck to meet your neighbors
66. Pick up litter along highways and near your home
67. Sponsor a clothes swap
68. Become involved with community projects and events
69. Organize or participate in community sports
70. Be reponsible for the values you express
71. Educate yourself on global and "Third World" issues
72. Participate in sister city and cultural exchanges
73. Learn about the cultural diversity in your region
74. Work for global peace
75. Learn how your legislators vote, let them know your views
76. Be an active voter and attend town meetings
77. Vote for candidates who support green values
78. Become involved with your child's school
79. Encourage your child's natural talents and interests
80. Organize or join a toy co-op
81. Put toxic substances out of reach of children
82. Teach your children ecological wisdom
83. Listen to your children's needs and support their dreams
84. Discourage the use of violent toys in your household
85. Communicate openly wiuth your co-workers and friends
86. Acknowledge someone who provides quality service
87. Work to understand people with different values
88. Be conscious of the struggles of oppressed people
89. Unlearn cultural sexism and racism
90. Acknowledge individual spirituality in yourself and others
91. Donate blood if your health permits
92. Explore ways to reduce the stress in your life
93. Practice preventive health care
94. Exercise regularly and eat wisely
95. Bring music and laughter into your life
96. Learn about the medications you put in your body
97. Practice responsible family planning
98. Learn First Aid and emergency procedures
99. Take time to play, relax and go into nature
100. Decrease TV watching and increase creative learning
101. Have fun and be joyful!

Valdez Journey



A drunk Captain
Greedy corporate executives
Pontius Pilate Presidents
Washing their hands of responsibility
A complacent public
These things brought
The black killing muck
Suffocating its victims

But most of all
It is all of us
Who brought this rape of a life-giving Planet
Forgetting our grandchildren
And their grandchildren
And their grandchildren
Forgetting the life
Now dying in burning Amazon forests
Forgetting the oceans, lakes, and rivers
Dying now of exploitation and pollution
Charnel houses of the fishing industry
Sewage basins of the cities
Forgetting teachings
of ancient ancestors
Honoring Nature
Forgetting, as the Sioux say, "all our relations"
The people, not just the human people
Who live together on this island Earth
Remembering mainly our own importance
(The evening TV newsman announced
that the tanker accident occurred
"without loss of life")

Sea Otter lies now
Outstretched
Immobilized in black tar
Dying
Trying hard to breathe

Do you remember us?
He asks
Do you remember
How long, long ago
We gave you life?
Do you remember
How we gave you food?
Do you remember
How we clothed you?
Do you remember?

We remember
He says
Our suffering is a gift
To awaken you
From the trance you call Civilization
You are lost
Let us guide you home
Let us all journey
Away from Valdez
Together
Back home

– Michael Harner

IC News and IC Needs

● IC is experiencing a slight decline in membership renewals. On that note, please turn to the last page of this newsletter. If you find a reminder label affixed there, we hope you'll take a few minutes to renew. We recently tried a form letter as the remedy, and found that most of the people who responded had simply forgotten. One renewing member pointed out that many people are so inundated by non-profits seeking money, that they may not respond unless we also use the mass-marketing approach. Quite honestly, we think that mode uses entirely too much paper. And as you can see from the notice on the *first* page of this newsletter, we have switched over to recycled paper.

● The IC Orca project is gearing up for its 12th year with the orcas who inhabit the east Coast of Vancouver Island. We have recently chartered a forty foot boat to use as our onsite recording studio during the entire month of August. Our crew is fast approaching the limit of 25 participants. There will be a full report in the next Newsletter.

● We at IC have been using an IBM computer system for nearly three years now. Unfortunately, as the newsletter gets more and more graphics and memory intensive, we are continually running up against the incompatibility which seems built into the DOS world. All to mean that we seek one of the new MacIntosh Desktop Publishing Systems. If any of our readers has any ideas on how we might get a donation of a Mac II computer, laser printer, scanner, and software please let us know.

● And lastly, IC is **not** currently merchandising Jim Nollman's book, *Animal Dreaming*. This has occurred because the publisher, Bantam Books, has recently sold out of the first edition and has decided to hold off printing the second edition until January 1990, when it will be reissued simultaneously with Jim's new book, *Spiritual Ecology*.